REMARKS

By this Amendment claim 1 has been amended to simplify its presentation. Entry is in order.

The examiner should note the concurrently filed Substitute Letter Re Drawings wherein the proposed added features are depicted in more schematic fashion than previously.

In the outstanding final Office Action the examiner has rejected claim 1 under 35 U.S.C. §112, first paragraph, because the specification is "silent about the arrangement of the second end of the spring." The examiner says that he does not understand how the device would function if "the other end of the spring is free because the spring would freely rotate around the plastic bushing and not expand or contract to brake the system."

The inventor asserts that it is quite clear how the spring works. It is obvious from the original disclosure that spring 11 is located on the plastic bushing 10 which again is fixed on the metal bracket 8. The end 16 of the spring is attached to the worm wheel 13 while the other end of the spring is free. The examiner is correct that the spring freely rotates around the plastic bushing when the motor is running. When the motor is shut off, the spring is tight on the plastic bushing. Now, when the spring is rotated in a direction against the windings of the spring, the friction between the spring and the plastic bushing will seek to unwind the spring, i.e., the internal diameter of the spring will enlarge slightly, causing the

spring to lose its grip on the plastic bushing. When the motor is stopped, the spring immediately regains its original shape on the plastic bushing and prevents back-drive of spindle 19 and worm wheel 14. Reversing the motor will cause the plastic bushing to rotate in the direction of the windings of the spring 11, which then grip even harder around the plastic bushing. The friction tends to tighten the windings of the spring on the bushing. However, the motor is strong enough to overcome the grip of the spring on the bushing.

In fact, the construction is based of the principle of a cowboy attaching his horse outside the saloon simply by wrapping the horse's rein around a bar a few times and letting the end of the rein hanging freely.

Now what the spring does is apply a torque which is dependent on the actual friction between the spring and the bushing. In the outwards movement the torque is almost zero due to the expansion of the spring. In the resting position the torque is sufficient to prevent back drive of the spindle. When reversing the motor force is sufficient to overcome the torque. Accordingly, it is a delicate balance, however, the construction proves to function well in practice.

The examiner's rejection under 35 U.S.C. §112 should be withdrawn.

The examiner has rejected claims 1, 5-8 and 10 (and 2-4 and 9?) under 35 U.S.C. §103(a) as being unpatentable over Turk in view of Harada (newly cited).

The inventor disagrees.

As stated before, Turk deals with a vent window actuator. The actuator is a rotary actuator where the drive element 32, 32a, 32b only describes a small angle. A spring 30 is arranged to assist movement of the output gear in a direction to close the vent window. For this purpose, both ends of the spring are 30 anchored, one end attached to the gear wheel 28 while the other end 30a is anchored in the housing. Accordingly, the spring is fixed against rotation. The end of the spring attached to the gear wheel 28 is moved to bring about a spring force assisting the closing operation of the vent window. Please see section 0038 page 2. The spring in Turk does not serve as a breaking means; on the contrary, it applies an acceleration force when reversing.

Although the title of Harada is a spring coupler brake, the two helical springs 33a, 33b in Harada acts as coupling springs with their outer face expanding against the interior side of the a housing 24. By means of the handle 26a a pivotable member 26 could be adjusted. Both ends of the springs are bent into the hollow of the springs. The ends could be engaged by the legs or the lateral edges of the two core members 31 and 32. Turning the handle 26a in either direction would cause the springs to tighten and the frictional engagement with the sidewalls of the housing 24 would be broken and thereby cause the pivotable member 26 to rotate. The other way around a force on the member 26 would cause the springs to expand further into a firmer grip

with the sidewalls of the housing 24 (see the description of the operation in column 4, line 11 and onwards). It is appreciated that the springs act as coupling springs as they are either in engagement with the housing or disengaged. Accordingly, no heat is generated. By the way, as the function of Harada is also reflected in the present application, column 1, line 5, where it is stated that it is a one-way spring coupler through which rotation is transmitted from a drive member to a driven member, but rotation is not reversibly transmitted.

It is perfectly possible to combine Harada with Turk; however, that would result in a pure combination without any additional effect and without bringing a person of ordinary skill closer to the present invention.

The closest piece of prior art is Harada and not Turk. However, Harada is a complicated construction requiring a housing and core members to operated the springs.

In Turk it would not be possible to rearrange the helical spring in alignment with an axis of the rotating element and resulting in the invention. It would rather result in a construction as dealt with in GB 2 134 328. In this document a helical spring is arranged around an axis of a rotating element used to prevent a self-starting synchronous motor from starting in an undesired direction.

Withdrawal of the prior art rejection and allowance of this application is requested.

Respectfully submitted,

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Annotated Sheet

Fig. 1